

REMARKS

The title has been amended to make it more descriptive, as the Examiner requested.

The specification has been amended to recite the current status of the parent application, as the Examiner requested.

Claim 4 has been amended to correct a typographical error, as the Examiner requested.

Claims 1 and 3-10 stand rejected for obviousness-type double patenting over claims 1-4 of U.S. 6,699,336, which is commonly owned. Upon allowance of claims 1 and 3-10, applicants will submit a terminal disclaimer.

Claims 1-10 and 15-17 stand rejected under 35 U.S.C. §102(b) over a number of references. We will deal with each rejection separately, below. However, one point common to each of the references bears mentioning at the outset. The Examiner concludes each rejection with the following statement:

Examiner's note: accordingly, products of identical chemical composition can not have mutually exclusive properties, and thus, the claimed characteristic (i.e., remaining an amorphous mixture), is necessarily present in the prior art material.

This statement is incorrect because it assumes that all compositions that include the same chemical constituents necessarily will have the same microstructure. This simply is not true. The same chemical constituents can be assembled at the molecular level in a variety of different ways, giving rise to compositions with different microstructures and, consequently, very different properties.

A classic example of this phenomenon is the case of graphite and diamond. Both have exactly the same chemical composition because both consist solely of carbon. However, the manner in which those carbon atoms are put together varies significantly between graphite and diamond. The two materials, as a result, indisputably have very different properties. For the reasons discussed below, that is the case with many of the references upon which the Examiner bases the claim rejections. Arguably, they may describe compositions that include the chemical constituents. However, none of them unambiguously describes a composition in which those

chemical constituents are assembled in the form of an amorphous mixture, as each of the pending claims requires.

We turn now to the individual rejections.

Claims 1-10 and 15-17 stand rejected under 35 U.S.C. §102(b) over JP 08-50922. JP 08-50922 describes anodes for rechargeable lithium batteries that may assume a variety of forms, one of which is an "alloy" of a metal that alloys with lithium and a metal that is unable to alloy with lithium. However, JP 08-50922 provides no further disclosure regarding the microstructure of this "alloy," nor does it provide sufficient details regarding the manufacture of this "alloy" to enable a person of ordinary skill to determine its microstructure. Therefore, based upon the limited disclosure of JP 08-50922, it is impossible to determine whether these "alloys" are in the form of an amorphous mixture, as the claims require. Accordingly, because JP 08-50922 does not unequivocally and unambiguously describe an alloy in which the constituents are assembled in the form of an amorphous mixture, as the claims require, JP 08-50922 does not satisfy the standards for supporting a rejection under §102(b) based upon inherency. Consequently, the rejection should be withdrawn.

If the Examiner believes otherwise, he is urged to identify specific passages in JP 08-50922 unambiguously establishing that the "alloys" inherently are in the form of an amorphous mixture. As noted above, it is not enough, for purposes of rejecting the claims, merely to demonstrate the presence of suitable chemical constituents in the cited reference.

Claims 1, 3-7, 9, and 17 stand rejected under 35 U.S.C. §102(b) over JP 06-325764. JP 06-325764 describes a battery having a negative electrode that includes an "Al-Si-Fe alloy." All that JP 06-325764 discloses about this material is that it is an alloy. It does not describe the microstructure of the alloy, nor does it provide any information that would allow a person of ordinary skill to determine its microstructure, and thus whether it inherently included Al, Si, and Fe in the form of an amorphous mixture. In this regard, we note that JP 06-325764 fails to provide sufficient details regarding how the alloy was prepared to allow a person of ordinary skill to reproduce the alloy and determine its microstructure. Accordingly, JP 06-325764 does not unequivocally and unambiguously describe an alloy in which the constituents are assembled

in the form of an amorphous mixture, as the claims require. JP 06-325764, therefore, does not satisfy the standards for supporting a rejection under §102(b) based upon inherency. Consequently, the rejection should be withdrawn.

If the Examiner believes otherwise, he is urged to identify specific passages in JP 06-325764 unambiguously establishing that the Al-Si-Fe alloy inherently was in the form of an amorphous mixture. As noted above, it is not enough, for purposes of rejecting the claims, merely to demonstrate the presence of suitable chemical constituents in the cited reference.

Claims 1, 4-5, 7, and 17 stand rejected under 35 U.S.C. §102(b) over JP 10-294112. JP 10-294112 describes metal silicides for use as negative electrodes in lithium batteries. As stated in paragraph [0012], the metal silicides are in the form of an "intermetallic silicide." In addition, the compositions always include at least some crystalline material. In contrast, the pending claims call for a composition "consisting essentially of" electrochemically active and inactive elemental metals in the form of an amorphous mixture. The claims thus exclude both intermetallic compounds and crystalline materials. Accordingly, the claims exclude the compositions described in JP 10-294112. Therefore, JP 10-294112 does not anticipate the claims, and the rejection should be withdrawn.

Claims 1-10 and 17 stand rejected under 35 U.S.C. §102(b) over JP 10-223221. JP 10-223221 describes materials for lithium battery electrodes in the form of amorphous or low crystallinity, intermetallic compounds. These compounds, according to JP 10-223221, are distinct from alloys. The claim, however, exclude intermetallic compounds by virtue of the "consisting essentially of" language included in each claim. JP 10-223221, therefore, does not anticipate the claims, and the rejection should be withdrawn.

Claims 1-10 stand rejected under 35 U.S.C. §102(b) over EP 0209402. EP 0209402 describes aluminum alloys for use as anodes for electrochemical cells. It describes using a "conventional casting protocol" to produce the alloys. Such a method would not produce an amorphous alloy, as claims 1-10 require. Therefore, EP 0209402 does not anticipate claims 1-10.

Claims 1-6, 8, and 17 stand rejected under 35 U.S.C. §102(b) over EP 070359. EP 070359 describes two phase particles useful as anodes in a number of different types of rechargeable batteries, including lithium batteries. The particles can have a wide variety of compositions, including carbon, conductive polymers, metal oxides and sulfides, and "alloys," which may include intermetallic compounds. Nowhere, however, does EP 070359 describe the microstructure of the alloy in sufficient detail to enable a person of ordinary skill to determine whether or not it is in the form of an amorphous mixture. In fact, if anything, the processes described in Embodiments 1 and 10, which yield "alloys," include an annealing step characteristic of processes that produce crystalline material. Accordingly, because EP 070359 does not unequivocally and unambiguously describe an alloy in which the constituents are assembled in the form of an amorphous mixture, as the claims require, EP 070359 does not satisfy the standards for supporting a rejection under §102(b) based upon inherency. Consequently, the rejection should be withdrawn.

If the Examiner believes otherwise, he is urged to identify specific passages in EP 070359 unambiguously establishing that the "alloy" inherently was in the form of an amorphous mixture. As noted above, it is not enough, for purposes of rejecting the claims, merely to demonstrate the presence of suitable chemical constituents in the cited reference.

Claims 1-2, 4-5, 8, and 15-17 stand rejected under 35 U.S.C. §102(b) over WO 99/49532. WO 99/49532 describes compositions useful as anodes for lithium-ion batteries having a microstructure characterized by the presence of crystalline regions. This microstructure is very different from the amorphous mixture that the claims require. The "consisting essentially of" language included in each claim excludes the presence of such crystalline regions. WO 99/49532, therefore, does not anticipate the claims, and the rejection should be withdrawn.

None of the cited references necessarily and unambiguously describes a composition having the amorphous microstructure required in each of the pending claims. Accordingly, the claim rejections based upon these references should be withdrawn., and the claims allowed.

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Applicant : Robert L. Turner et al.
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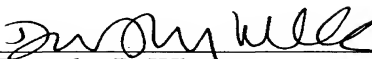
Respectfully submitted,

Date: _____

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Fish & Richardson P.C.
60 South Sixth Street
Suite 3300
Minneapolis, MN 55402
Telephone: (612) 335-5070
Facsimile: (612) 288-9696

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Dorothy P. Whelan
Reg. No. 33,814